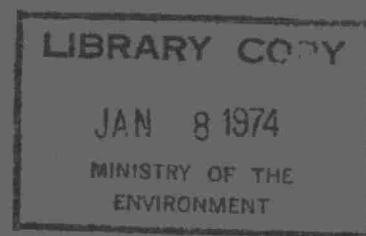


1
9
7
2

OPERATING SUMMARY

ROCKLAND



LABORATORY & RESEARCH LIBRARY
MINISTRY OF THE ENVIRONMENT

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca



Ontario

Ministry of the
Environment

135 St. Clair Avenue West
Toronto 195, Ontario

We are pleased to present you with the 1972 operating summary for the water pollution control plant and water supply system serving your community.

This summary contains data on the performance of the plants as well as relevant financial information. Of particular interest is the review of the year's activities in which significant items of these data are discussed in some detail by the operations engineer and his staff who, through their day-to-day involvement with the operation, are thoroughly familiar with the plants.

We appreciate your continuing interest in protecting both the environment through efficient operation of the wastewater treatment facility and the well-being of the community through the provision of an adequate supply of safe potable water.

D.S. Caverly,
Assistant Deputy Minister.

D.A. McTavish, P. Eng.,
Director,
Project Operations Branch.

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable James A. C. Auld

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
D. S. Caverly

EXECUTIVE DIRECTOR
K. H. Sharpe

PROJECT OPERATIONS BRANCH

DIRECTOR
D. A. McTavish

ASSISTANT DIRECTOR
C. W. Perry

ACTING REGIONAL SUPERVISOR
B. W. Hansler

OPERATIONS ENGINEER
J. Dick

135 St. Clair Avenue West
Toronto 195

ROCKLAND

WATER TREATMENT PLANT

and

WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

1972 ANNUAL OPERATING SUMMARY

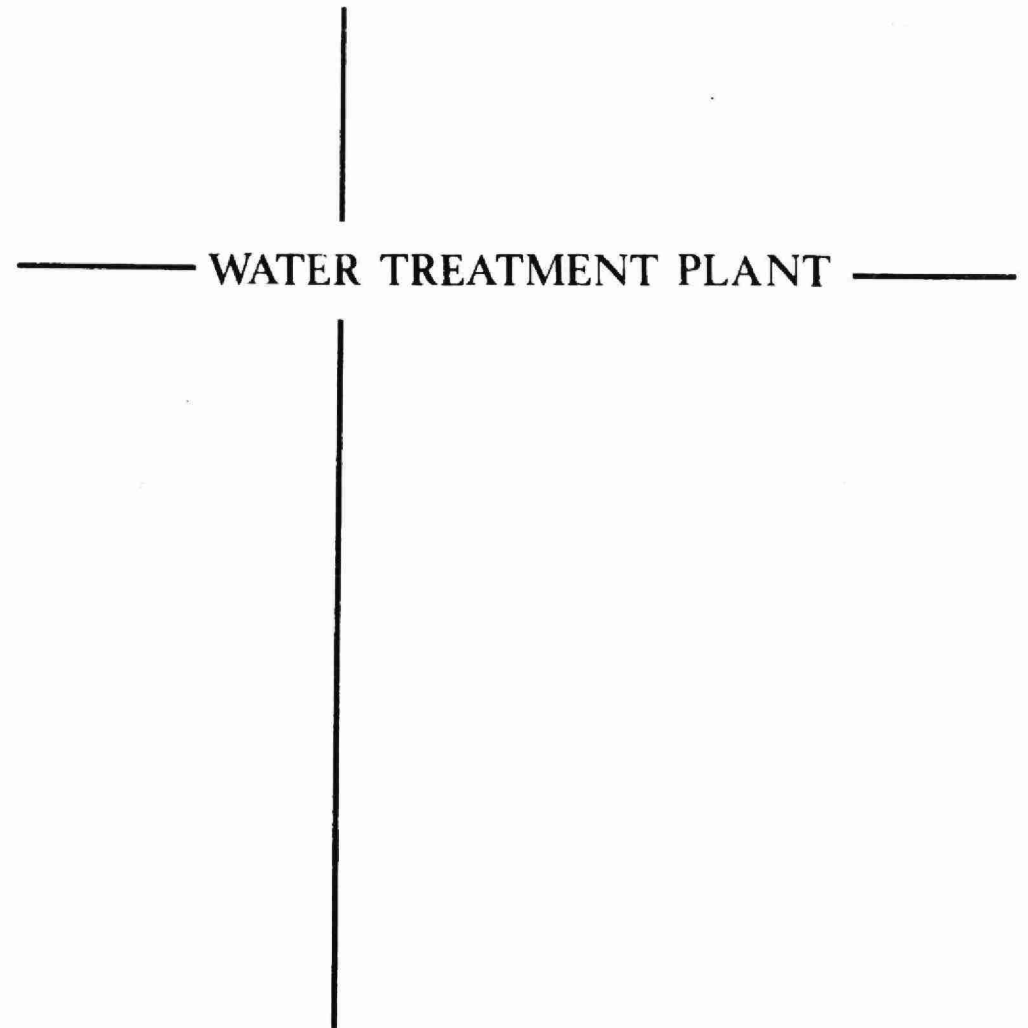
CONTENTS

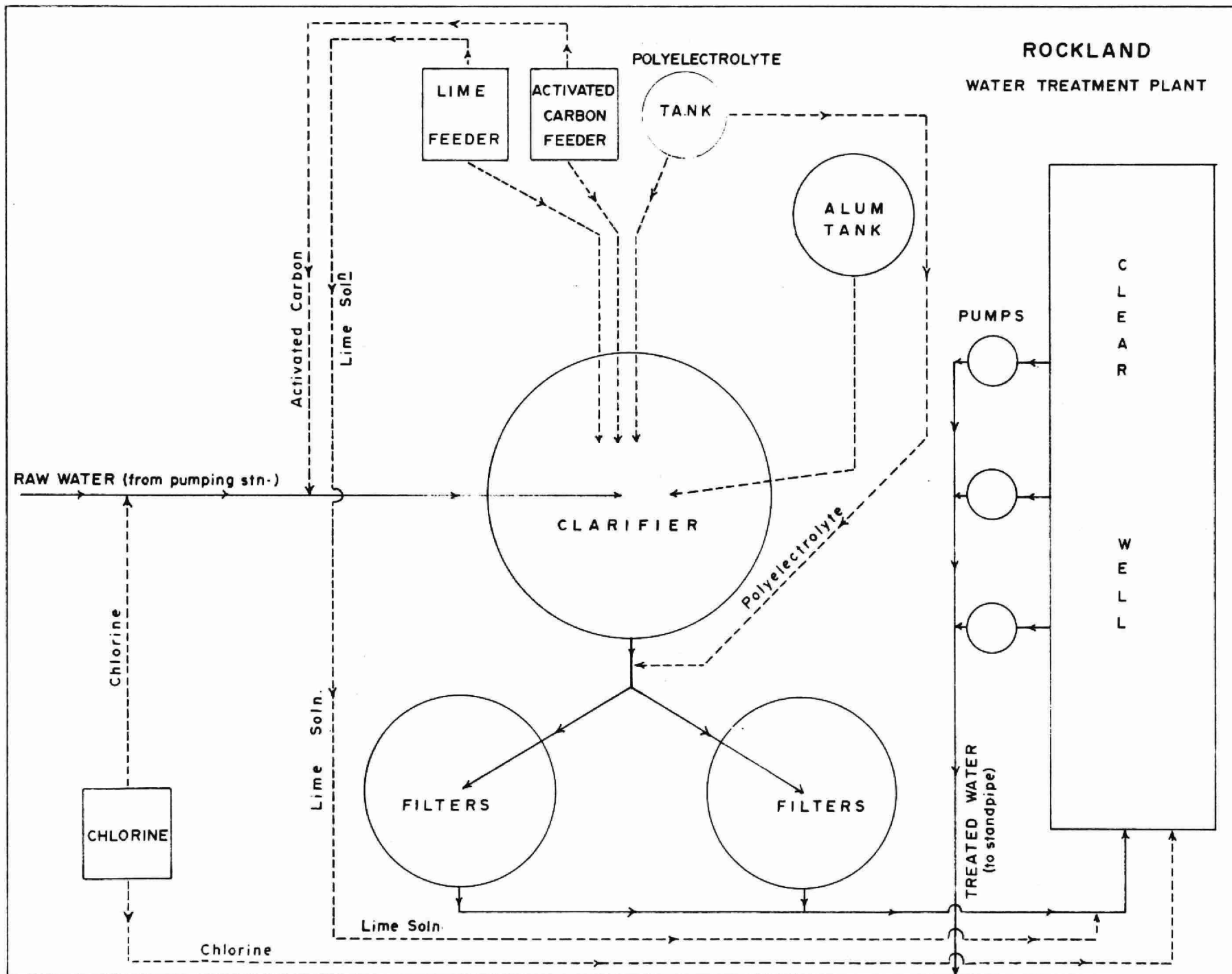
WATER TREATMENT PLANT

Design Data		7
'72 Review		8
Process Data		10

WATER POLLUTION CONTROL PLANT

'72 Review		14
Operating Costs		15
Process Data		16





DESIGN DATA

ROCKLAND WTP

Project No.	5-0052-67
Design Capacity	0.80 MIGD
Raw Water Source	Ottawa River

LOW LIFT P. S.

Pump #1 200 lgpm @ 42' TDH (2 stg)
Pump #2 400 lgpm @ 42' TDH (2 stg)
Pump #3 600 lgpm @ 42' TDH (1 stg)

COAGULATION & SEDIMENTATION

Type: GRAVER REACTIVATOR
Size: One 32' dia x 13' depth
Upflow rate: 0.76 lgpm/sq. ft.
Detention: 112 min.

FILTERS

Type: GRAVER MONOVALVE (2 compartment)
Size: Two 12' dia x 10'-6"
Media: Top layer 12" of #1 Anthrafilt
Lower layer 12" of 0.45 mm torpedo sand
Filter
Rate: 2.5 gpm/sq. ft.

HIGH LIFT PUMPS

Two Crane Deming 350 lgpm @ 176' TDH
One Crane Deming 600 lgpm @ 200' TDH

STANDBY POWER

Deutz Model F86413 Diesel generator

'72 Review

GENERAL

The Rockland water treatment plant has a capacity of 800,000 gpd. The water treatment plant commenced operation in several stages beginning approximately July of 1972. It was because of the gradual deterioration of the old water treatment plant that the standpipe could not be properly filled. Arrangements were therefore made for the new treatment facilities to augment the old facilities and thereby increase the water level in the Rockland standpipe. During this period of operation, the plant staff worked many hours to manually operate and observe the treatment of water that was pumped into the distribution system.

On August 9, 1972, the water treatment plant was put into full operation. Several problems occurred that required immediate correction. There were problems with the starting and stopping of the high lift pumps. This was corrected by the installation of time delays to eliminate the problem of frequent stop-starts. Difficulty was also encountered with the raw water flow meter. Because it was not functioning properly, the chemical dosage was very much affected in that the raw water meter controls the operation of the chemical dosage pumps.

The actual repair and maintenance of equipment was almost negligible because of the fact that the equipment was new and was under warranty of the manufacturers.

Two plant operators were hired for the operation of the water treatment plant. The Chief Operator hired was Mr. H. Leroux and the Operator hired was Mr. H. Henrie. Mr. Leroux began his services in March of 1972 and Mr. Henrie in June of 1973. The plant staff have operated the water treatment plant in a very satisfactory manner and their efforts should be commended.

On September 10, 1972 the Rockland Public Utilities Commission held an official opening at the Rockland Water Treatment plant. The official opening was followed by a luncheon that was held in the main office/laboratory complex. The large attendance at this official opening was certainly an indication of the interest that the citizens of the Town of Rockland had in the opening of this new water treatment plant.

EXPENDITURES

The cost of operating the water treatment facilities for the partial year was \$19,845.65. During the months of September, October, November and December, a total of 55,120,000 gallons were pumped from the treatment plant. This was an average of 450,000 gallons per day. This is a rather high average daily flow for a town the size of Rockland.

PLANT EFFICIENCY

The average raw water turbidity and colour were 3 JTU and 39 APP units respectively. The treated water turbidity and colour were less than 1 JTU of turbidity and approximately 1 APP unit of colour respectively. This is a very acceptable treated water quality. A further interest in the water quality can best be determined by an examination of the tables in the report. These tables are self explanatory.

CONCLUSIONS

The operation of the Rockland water treatment plant went into full production in August of 1972. The plant was operated in a very satisfactory manner by plant personnel. The water quality of the treated water was also of an excellent quality.

Since the average daily consumption of water in the Town of Rockland appears high, efforts should be made to locate and correct water main breaks and leaks quickly and efficiently as possible.

PLANT PERFORMANCE

MONTH	FLOWS				RAW WATER		TREATED WATER					
	TOTAL PLANT OUTPUT million gallons	AVERAGE DAILY FLOW million gallons	MAXIMUM DAY'S FLOW million gallons	MAXIMUM RATE mgd	TURBIDITY (AVERAGE) JTU	COLOUR (AVERAGE) App. units	TURBIDITY		COLOUR		TEMPERATURE	
							AVERAGE JTU	MAXIMUM JTU	AVERAGE App. units	MAXIMUM App. units	AVERAGE ° F	MAXIMUM ° F
JAN												
FEB												
MAR												
APR												
MAY												
JUNE												
JULY												
AUG												
SEPT	11.32	.38	.51			32	.04	0.06				
OCT	14.49	.47	.54		3	36	2.5	2.5	1	15		
NOV	14.22	.47	.58		3	50	1.6	1.6	2	15	40	42
DEC	15.09	.49	.58		2	39	0.1	.8	<1	5	36	40
TOTAL	55.12											
AVG.		.45	MAXIMUM .58	MAXIMUM	3	39	0.22	MAXIMUM 2.5		MAXIMUM 15	38	MAXIMUM 42

TREATMENT DATA

MONTH	CHEMICALS USED						CHLORINATION			
	S E P A R A N		L I M E		A L U M		TOTAL AMOUNT OF CHLORINE USED pounds	DOSAGE		RESIDUAL IN PLANT EFFLUENT mg/l
	AMOUNT pounds	DOSAGE m g / l	AMOUNT pounds	DOSAGE m g / l	AMOUNT pounds	DOSAGE m g / l		PRE - mg/l	POST - mg/l	
JAN										
FEB										
MAR										
APR										
MAY										
JUNE										
JULY										
AUG										
SEPT			1550	13.6	700	6.2	463		4.1	.7
OCT			2100	14.5	890	6.1	516		3.6	.7
NOV	135.5	1.0	1700	12.0	770	5.4	468		3.3	.6
DEC	170.5	1.1	2250	14.9	920	6.1	437		2.9	.5
TOTAL	306.0		7600		3280		1884			
AVG.		1.0		13.6		4.9	pounds per day		3.6	.6

WATER QUALITY

PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	
HARDNESS in mg/l as CaCO_3	2	49	50	48	1	59	62	56	80 - 100
ALKALINITY in mg/l as CaCO_3	2	36	38	35	2	24	31	16	30 - 100
IRON in mg/l Fe	2	.48	.50	.45	2	.05	.05	<.05	Less than 0.3
CHLORIDE in mg/l Cl^-	2	6	7	4	2	9	10	8	Less than 250
pH in pH units	2	7.7	7.7	7.7	2	6.9	7.4	6.5	7.0 - 8.5
AMMONIA in mg/l as N	2	.07	.07	.06	2	.01	.01	.01	Less than 0.5
TOTAL KJELDAHL NITROGEN in mg/l as N	2	.51	.54	.47	2	.20	.23	.17	Less than 1.

— WATER POLLUTION CONTROL PLANT —

'72 Review

The average daily flow from the Town of Rockland sewage collection system was 98,000 gallons per day. It should be noted that these are estimated flows taken from time totalizer readings that record the length of time the pump is pumping and does not allow for errors that could be caused due to a partially plugged pump. It should also be noted that the flow for the first six months of the year are considerably smaller than those for the last six months of the year. This is coincident with the start-up of the water treatment plant.

The BOD and suspended solids in the raw sewage were 43 and 73 ppm respectively. The lagoon effluent BOD and suspended solids were 7 and 14 mg/l respectively. This is well within the objectives of the Ministry of the Environment.

In April of 1972, the #1 motor in the #2 station was damaged because a block of wood had become wedged in the pump impeller. The repair work required a new shaft and bearings for a total cost of \$222.85. In July of 1972, the same motor had to be re-wound and may have been a result of the original incident where considerable mechanical damage was caused to the pump and shaft.

The staff of the water treatment plant also took over the operation of the two sewage pumping stations in the Town of Rockland. The operation of the two sewage pumping stations has been greatly improved since this operation has been transferred to the water treatment personnel, because a better communication channel has been developed.

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	REGULAR PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY	WATER	TRAVEL
JAN												
FEB												
MAR	1.00									1.00		
APR	212.80		175.00						37.80			
MAY	32.85								32.85			
JUNE	228.50								228.50			
JULY	134.15								86.60			47.55
AUG	621.86						39.53		545.88			36.45
SEPT	452.17					69.45	38.40		298.87			45.45
OCT	408.34						10.60		397.74			
NOV	34.07									34.07		
DEC	3883.32	1500.00			2000.59		22.74	191.49	59.45			109.05
TOTAL	6009.06	1500.00	175.00		2000.59	69.45	111.27	191.49	1687.69	35.07		238.50

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND			SUSPENDED SOLIDS			PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	LOADING	INFLUENT	EFFLUENT		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	lb/acre/day	mg/l	mg/l		mg/l P	mg/l P
JAN	1.2	.040									
FEB	1.1	.039									
MAR	1.2	.040									
APR	1.2	.040									
MAY	1.2	.039									
JUNE		.21		50	10		50	10		7.7	2.4
JULY	12.6 *			52	8		135	15		9.5	2.9
AUG	4.0	.13		29	6	1.9	53	15		3.8	3.1
SEPT	2.7	.091		55	4	2.5	140	10		5.0	2.6
OCT	3.2	.10		10	3	0.5	20	10		1.6	1.9
NOV	4.1	.14									
DEC	3.4	.11		120	9	6.7	80	20		7.1	1.8
TOTAL	35.9	-	-	-	-	-	-	-	-	-	-
AVG.		.098	MAXIMUM	43	7	2.9	73	14		5.3	2.6
No. of Samples	-	-	-	12	8	-	12	8	-	12	8

LABORATORY LIBRARY



96936000119573

Date Due

LABORATORY & CONSERVATION LIBRARY
MINISTRY OF THE ENVIRONMENT